

Geological mapping of slope for diversion tunnel outlet

Scale 1:100

Legend

- Interbedded Mn Schist and Quartz-Schist
- Moderately weathered
- Joint number and attitude (Dip direction/Dip)
- Dripping



Summary of Geological Conditions

Slope Elevation	EL. 1230.00-EL. 1248.44
Rock types	Mi+Qu Sch
Rock hardness	Medium hard rock
Degree of weathered	Moderately weathered
Rock attitude (Dip direction/dip)	45° / 44°
Rock mass classification	III
Groundwater situation	Dry local dripping

STAKE	TUNNEL	ROCKTYPE/K	UCS	GROUND WATER	RQD	Jv	Jh	Jr	Jn	Jw	SRF	Q= $\frac{RQD \times J_v \times J_h \times J_r \times J_n \times J_w}{J_h \times J_v \times SRF}$	ROCKMASS CLASS	DATE
	DIRECTION	Mi+Qu Sch		GW1	70	13.6	6	1.5	1	1	2.5	?	III	2022.1.16
NO.	Occurrence		SEPARATION (m)	JOINTS GROUP			ROUGHNESS/ APPEARANCE	FILLING	WEATHER OF ROCK WALL	FAULT		UCS		
	Dip direction	Dip angle		SPACING	NUMBER	PERSISTENCE				INFLUENCEDZONE (m)	NATURE	Very high	>250	
												High	100-250	
												medium high	50-100	
J3	45	44	C1	SP1	20	C3	R2	F3, F4	W3			moderate	25-50	
J4	225	80	C2	SP1	1	C3	R2	F4	W3			Low	5-25	
J5	10	25	C2			C2	R2	F4	W3			Very low	1-5	
I6(Plane)	175	65-85	C0			C2	R4		W3			RQD%		
I7(Plane)	175	65	C0			C2	R4		W3			Excellent quality	90-100%	
	SEPARATION(APERTURE)		SPACING OF JOINTS		PERSISTENCE		ROUGHNESS/APPEARANCE			FILLING		Good quality		75-90%
	C0:Very tight <0.1mm		SP1:VERY WIDE >2m		C1:Very Low <1m		R1:very rough surfaces			F1:rock siller F8:Bacteria		Fair quality		50-75%
	C1:Tight 0.1-0.5mm		SP2:WIDE 0.6-2m		C2:Low 1-3m		R2:rough surfaces			F2:rock sliver F9:Calcarenite		Poor quality		25-50%
	C2: open 0.5-2.5mm		SP3:200-600mm		C3:medium 3-10m		R3:slightly rough surfaces			F3:rock fragments F10:Mylonite		Very poor quality		<25%
	C3: open 2.5-10mm		SP4:60-200mm		C4:High 10-20m		R4:smooth surfaces			F4:rock powder F11:Fault clay		GROUND WATER CONDITION		
	C4: Wide 10-30mm		SP5:<60mm		C5:Very high >20m		R5:altered/sided surfaces			F5:Calcium film F12:Sliced rock				GW1
	C5: Very wide >30mm				E0: Left wall		A1:p6mar			F6:Calcite vein F13:argillized seam		GW2	Damp	
WEATHER OF ROCK WALL					E1: Top wall		A2:stepped			F7:Quartz vein F14:clay course		GW3	Wet	
W1:unweathered W2:lightly weathered					E2: Right wall		A3:undulating			F15: weak intercalated layers siltized		GW4	Dripping	
W3:moderately weathered W4:highly weathered										F16:Fractured zone		GW5	Flowing	

SEPARATION (APERTURE)

C0: Very tight <0.1mm
C1: Tight 0.1-0.5mm
C2: open 0.5-2.5mm
C3: open 2.5-10mm
C4: Wide 10-30mm
C5: Very wide >30mm

SPACING OF JOINTS

SP1: VERY WIDE >2m
SP2: WIDE 0.6-2m
SP3: 200-600mm
SP4: 60-200mm
SP5: <60mm

PERSISTENCE

C1: Very Low <1m
C2: Low 1-3m
C3: medium 3-10m
C4: High 10-20m
C5: Very high >20m

ROUGHNESS/APPEARANCE

R1: very rough surfaces
R2: rough surfaces
R3: slightly rough surfaces
R4: smooth surfaces
R5: slickensided surfaces

FILLING

F1: rock filler
F2: rock filler
F3: rock fragments
F4: rock powder
F5: Calcium film
F6: Calcite vein
F7: Quartz vein
F8: Breccia
F9: Caraculite
F10: Mylonite
F11: Fault clay
F12: Sliced rock
F13: argillized seam
F14: clay course
F15: weak intercalated layers (sliprock)
F16: Fractured zone

WEATHER OF ROCK WALL

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W2: slightly weathered
W3: moderately weathered
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NOTE

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DATE	2022	FOR APPROVAL	DATE	2022	2022
NO.	100	APPROVED	NAME	NAME	NAME

PROJECT NO.: Upper Trishuli-1 REP (216M)

CLIENT: NWEDC

CONSULTANT: FRATERBEL

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